

Generators, Light Towers, Compressors, and Heaters

Used Compressors Chandler - Air compressors are popular equipment that stores pressurized air by transferring power into potential energy. These units use electric, diesel or gas motors to force air into a storing tank to increase the pressure. After the tank reaches a certain limit, it is turned off and the compressed air is held in the tank until it needs to be used. Compressed air is utilized in a variety of industries. Once the kinetic energy in the air tank is used up, the tank undergoes depressurization. The pressurization restarts after the air compressor turns on again, which is triggered after the lower limit is reached.

Positive Displacement Air Compressors There are a variety of air compression methods. There are two categories: roto-dynamic or positive-displacement. The air is forced into a chamber with decreased volume in the positive-displacement model and this is how the air becomes compressed. Once the ultimate pressure is found, a port or valve opens to discharge the air from the compression chamber into the outlet system. Vane Compressors, Rotary Screw Compressors, and Piston-Type are popular kinds of positive-displacement compressors.

Dynamic Displacement Air Compressors Centrifugal air compressors, along with axial compressors fall under the dynamic displacement air compressor category. These units rely on a rotating component to discharge the kinetic energy and transform it into pressure energy. There is a spinning impeller to generate centrifugal force. This mechanism accelerates and decelerates the contained air to produce pressurization. Air compressors create heat and need a method to dispose of the heat, typically with some kind of water or air cooling mechanism. Atmospheric changes are also taken into consideration during compressor cooling. Many factors need to be considered for this kind of equipment including the power available from the compressor, inlet temperature, the location of application and ambient temperature.

Air Compressor Applications There are many uses for air compressors and they are used frequently in a variety of industries. Supplying clean air with moderate pressure to a submerged diver is one use. Providing clean air with high-pressurization to fill gas cylinders to supply pneumatic HVAC controls and powering items such as jackhammers or filling vehicle tires are other popular uses. There are many industrial applications that rely on moderate air pressure.

Types of Air Compressors The vast majority of air compressors are either the rotary screw kind, the rotary vane type or the reciprocating piston model. These types of air compressors are favored for portable and smaller applications.

Air Compressor Pumps Oil-injected and oil-less are two specific types of air-compressor pumps. The oil-free system is more expensive compared to oil-lubed systems and they last less time. Better quality is provided by oil-free systems.

Power Sources There are a variety of power sources that can be used alongside air compressors. Gas, electric and diesel-powered air compressors are among the most popular types. There are other models that have been created to rely on power-take-off, hydraulic ports or vehicle engines that are commonly used for mobile systems. Diesel and gas-powered models are often chosen for remote locations that offer limited access to electricity. Gas and diesel models are noisy and emit exhaust. Interior locations such as workshops, warehouses, garages and production facilities have power and can rely on quieter, electric-powered models.

Rotary-Screw Compressor The rotary-screw compressor is one of the most popular kinds on the market. This model of gas compressor relies on a positive-displacement mechanism of the rotary type. These units are commonly used in industrial settings to replace piston compressors for jobs that require high-pressure air. Impact wrenches and high-power air tools are common. Gas compression of a rotary-screw model features a sweeping, continuous motion, allowing minimal pulsation which is common in piston model compressors and may cause a less desirable flow surge. Compressors use rotors to create gas compression in the rotary-screw compressor. There are timing gears affixed on the dry-running rotary-screw compressors. These components are important to ensure the female and male rotors operate perfectly aligned. There are oil-flooded rotary-screw compressors that rely on lubricating oils to fill the gaps between the rotors. This design creates a hydraulic seal and transfers mechanical energy in between the rotors simultaneously. Entering at the suction

portion, gas travels through the threads while the screws rotate; forcing the gas to pass through the compressor and exit through the screws ends. Overall success is effective when particular clearances are achieved regarding the sealing chamber of the compression cavities, the rotors and the helical rotors. High speeds and rotation are utilized to achieve harmony and minimize the ratio of leaky flow rate vs. effective flow rate. Rotary-screw compressors are used in industrial locations that need constant air, food processing plants and automated manufacturing facilities. Other than fixed models, there are mobile units in tow behind trailers that run on diesel engines. Often referred to as “construction compressors,” portable compression systems are necessary for riveting tools, road construction crews, sandblasting applications, pneumatic pumps and numerous other industrial paint systems. Scroll Compressor A scroll compressor is used to compress refrigerant. It is common in vacuum pumps, to supercharge vehicles and in air conditioning equipment. Scroll compressors are used in many automotive air-conditioning units, residential heat pumps and air-conditioning systems to replace wobble-plate traditional and reciprocating rotary compressors. This apparatus features dual interleaving scrolls that are responsible for pumping, compressing and pressurizing fluids including gases and liquids. As one of the scrolls is often fixed, the other scroll eccentrically orbits with zero rotation. This action traps and pumps or compresses fluid between the two scrolls. The compression movement occurs when the scrolls co-rotate with their rotation centers offset to create a motion akin to orbiting. Acting like a peristaltic pump, the Archimedean spiral is contained within flexible tubing variations’ similar to a tube of toothpaste. There is a lubricant on the casings to stop exterior pump abrasion. The lubricant also dispels heat. The peristaltic pump is a great solution since there are no moving items contacting the fluid. With zero valves, seals or glands, this equipment stays simple to operate in maintenance terms. Compared to additional pump items, this tube or hose piece is fairly low cost.